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To Advance the Science of Cold-blooded Vertebrates

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A CURIOUS FISH TRAP

In a shipment of specimens from Dr. C. Bonne in 1922 was a fine 48-inch *Micrurus surinamensis* which on being cut open yielded a very fine 24-inch *Symbranchus* with ovary. The following account of the capture is from Dr. Bonne's letter to Dr. Stejneger:

In a separate tin there is a snake, I think *Micrurus surinamensis*, and an eel. There is a story to tell about these two. I had a fish trap, made of wire netting, in a creek here; a simple affair (compare drawing). One day I found the snake in the trap with the eel inside the snake, the tip of its tail sticking out of the snake's mouth. The snake had died through asphyxia, not being able any more to rise to the surface of the water. After opening the eel I found a number of egg-like things inside; you will find them with the eel and the snake in the tin. Although they look very much like an ovary with ripe eggs I cannot combine this very well with my poor knowledge about eels, going to the deepwater of the ocean before ripening their eggs. Are South American eels different from our Western European in this habit? Or are these things some stage of a parasite perhaps, and no eggs at all? Can you help me out with this?

Dr. Monica Taylor in the *Quarterly Journal of Microscopical Science*, Vol. 59, Part 1, May 1913,

gives an exhaustive account of the development of *Symbranchus marmoratus:* "The laid egg is spherical and has a diameter of 3.4 to 3.5 mm. Its capsule is firm and somewhat tough and separated from it by fluid. A mass of what looks like a coagulated albuminous substance is present at the vegetative pole. When the capsule is removed this substance separates away, so that the egg appears to be sometimes no longer spherical, but somewhat oblate, the equatorial diameter being the greater. In a nest discovered on December 12th the eggs were all fairly uniform and of early stage. Some of these hatched out on the 19th. About a dozen nests in all were found, the adult male as in the case of *Lepidosiren* being present to guard the contents. In many other respects the nesting habits of *Symbranchus* resemble those of *Lepidosiren.* The water in the swamps where the eggs were found was commonly from one to four feet deep. The mouth of the nest opens on the bottom of the swamp and leads into a tunnel running obliquely downwards into the mud. At the end, the tunnel takes a more or less horizontal direction and it is in this part that the eggs are laid, there being little or no weed. The living larvæ actively burrow among the weeds at the bottom of the rearing tanks when the lid is removed—as though to escape from the light." The material for Dr. Taylor's work was obtained in an expedition to the Gran Chaco in 1907 when Dr. Agar made an interesting discovery that the larva of *Symbranchus* has very well developed pectoral fins. Hitherto, the absence of pectoral fins has been regarded as one of the characteristics of the group.

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AMPHIBIANS AND REPTILES FROM WILMINGTON, N. C.

DURING the last two years several series of living amphibians and reptiles have been received from Wilmington, N. C., collected by Mrs. J. H. Cummings of that city. Since it seems that some of the forms represented have not been recorded from this locality, it is thought desirable to publish a list of the species. A large percentage of the specimens are now preserved in my own collection and that of the American Museum of Natural History.

Amphibia

Triturus viridescens dorsalis (Harlan). Fifty to seventy-five specimens, both land and water forms and larvae. An examination of this large series has convinced me that it is impossible to specifically separate *dorsalis* from *viridescens.** That the two forms are apparently not co-existent at Wilmington lends support to the theory that *dorsalis* is but a local race. Stejneger and Barbour in the recent second edition of their check-list consider it a subspecies. The red markings in some specimens run up on the head to an extent not seen in *viridescens.*

Stereochilus marginatus (Hallowell). 3.

Plethodon glutinosus (Green). 2.

Eurycea bislineata cirrigera (Green). 7.

Pseudotriton montanus montanus Baird. 2.

Desmognathus fuscus auriculatus (Holbrook). 1.

Bufo terrestris Bonnaterre. Several.

Bufo quercicus Holbrook. Two adult males, 26.5 mm. in length.

Acris gryllus (Le Conte). Numerous specimens.

Hyla ocularis (Holbrook). 1. I know of no other specimen being recorded from the state. It is the one

*See E. R. Dunn, *Bull. Mus. Comp. Zoöl.*, LXII, 1918, p. 452.

mentioned by Noble (*Amer. Mus. Novitates*, 70, p. 3) from Wilmington.

Hyla femoralis Latreille. 1.

Hyla squirella Latreille. Several.

Hyla cinerea (Schneider). One recently metamorphosed young and several adults. In the 14 adults, six showed partial or total lack of the yellow band along the jaw, side, and tibia. Two were altogether without these markings, appearing very like *H. evittata* Miller. The head shape was typical of *cinerea*, as observed in other series from Florida and Louisiana. In the opinion of some, the blunt head of *evittata*, described and figured by Miss Dickerson (*Frog Book*, pp. 128-130, pl. LII) is not a good character, and *evittata* is simply the unbanded form of *cinerea*. With this view I cannot at present agree. Numerous times several of the *cinerea* were in full cry in the terrarium and their call was very different from that described by Miller for *evittata*. The subject would well repay the investigation of some one more fortunately situated, who could study both forms in the field, compare their calls, etc.

Hyla versicolor versicolor (Le Conte). 5.

Rana palustris Le Conte. 4.

Rana sphenocephala (Cope). 3.

Rana clamitans Latreille. 9.

Rana catesbeiana Shaw. 1.

Rana virgatipes Cope. 2.

Gastrophryne carolinensis (Holbrook). 3. The call, as heard in the terrarium, reminds one of a loud electric buzzer.

Reptilia

Alligator mississippiensis (Daudin). One young.

Anolis carolinensis (Voigt). One male. "Abundant" — Mrs. Cummings.

Sceloporus undulatus (Latreille). Two young. "On live oak tree 20 miles out" — Mrs. Cummings.

Ophisaurus ventralis (Linné). One young.

Leiolopisma laterale (Say). 1.
Eumeces fasciatus (Linné). 2.
Diadophis punctatus punctatus (Linné). 1.
Heterodon contortrix (Linné). 1.
Heterodon simus (Linné). 1.
Opheodrys æstivus (Linné). 1.
Elaphe quadrivittata (Holbrook). Four, 15 in. to 5 ft., 1 in. It was interesting to note that the process of changing from the juvenile spotted stage to the striped adult coloration had proceeded nearly as far in the smallest as in the largest specimen. Both were *striped* snakes, the spots showing a little more plainly on the small than on the large.
Elaphe guttata (Linné). 1.
Masticophis flagellum flagellum (Shaw). 1. As Ortenburger has pointed out, *Masticophis* is a natural group, well distinguished from *Coluber*.
Cemophora coccinea (Blumenbach). Four, the largest 18 in. Ploughed up in fields.
Storeria occipito-maculata (Storer). One small erythristic female. This peculiar individual was nearly as bright red on the back as on the belly. It bore two minute young of normal coloration, each about one and a half inches long.
Storeria dekayi (Holbrook). 1.
Virginia valeriæ Baird & Girard. 1. It often flattens the neck like *Storeria dekayi*.
Thamnophis sirtalis sirtalis (Linné). 1.
Agkistrodon mokasen Beauvois. 1. Local name: "Beech Leaf Snake".

Following is a list of species reported as occurring at Wilmington by Mrs. Cummings and Mr. T. P. Lovering, which I see no reason to doubt. I have received no specimens of these.

"Mud Puppy"(probably *Necturus punctatus* Gibbes), *Abastor erythrogrammus* (Daudin), *Farancia abacura* (Holbrook), *Lampropeltis getulus getulus* (Linné), *Coluber constrictor constrictor* (Linné), *Pituophis melan-*

oleucus (Daudin), *Thamnophis sauritus* (Linné), *Natrix taxispilota* (Holbrook), *Natrix sipedon fasciata* (Linné), *Micrurus fulvius* (Linné), *Agkistrodon piscivorus* (Lacepede), *Sistrurus miliarius* (Linné), *Crotalus horridus* Linné, *Crotalus adamanteus* (Beauvois), *Pseudemys scabra* (Agassiz).

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TANTILLA EISENI REPORTED FROM LOWER CALIFORNIA

On January 1, 1924, Dexter M. Smith, an employee of the San Diego & Arizona Railway, while engaged in maintenance-of-way work at Kilometer 21, near the flag station of Matanuco, excavated a specimen of *Tantilla eiseni* Stejneger. The snake had evidently taken refuge in a rat hole and was found a few inches below the surface, near the edge of the railway ballast.

Kilometer 21 is in Lower California, twelve miles southeast of Tia Juana and eight miles below the boundary line. The altitude is 410 feet. This is apparently the first specimen of this rare snake to be reported from Mexican territory.

The snake is now on exhibition at the Reptile House of the San Diego Zoölogical Society, to which it was brought by Mr. Smith. The color agrees exactly with the description given by Van Denburgh (*The Reptiles of Western North America*, p. 877). The white collar occupies about half of the fifth row of scales and nearly all of the sixth. There are five distinct black dots on the seventh row and two of the sixth are tipped posteriorly with black. The gastrosteges number 181, urosteges in two series 63. The length over all is 207 mm. This individual is evidently not much over half grown.

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NOTES ON THE DRINKING HABITS OF TEREPENE CAROLINA (LINNÆUS)

Two box turtles, *Terepene carolina* (Linnæus), obtained locally, which have been in captivity, one, a female, for about 10 and the other, a male, for 2 1-2 years, were observed to drink frequently and regularly. At such times, especially in warm weather, they held the head submerged in a drinking position for long intervals. To determine how much water was consumed the following experiments were made.

Measured quantities of water were placed in containers accessible to the turtles. Being perfectly tame, they at all times commenced to drink immediately on presentation of the water. When satisfied, they moved away. The remaining water was then measured and deducted from the original quantity, from which data the following was tabulated:

	Air	Female		Male	
Date	Temp.	Quantity	Time	Quantity	Time
June 11, 1923	66°F.	3-4 oz.	30 min.	1-2 oz.	20 min.
12	66	1-2	20	1-4	35
13	65	1-2	22	none	15
14	68	1-4	20	1-4	10
15	69	1-2	15	1-4	25
16	68	1-2	25	1-8	5

The experiments were made about the same time each day between 7 and 9 A. M. The periods of time refer to the entire intervals from when the turtles first immersed their heads to when they began to move away. Usually several times during the drinking the head was raised, apparently for breathing necessities. Probably the most interesting point is the small amounts of water engulfed at such times, for the throat moved continuously, apparently in drinking effort.

On the 13th the male refused to drink at all, not even touching the water; and for some reason this specimen always took less water than the other, even when apparently anxious for it.

RUTH BERNICE BREDER

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EMORY'S SOFT-SHELLED TURTLE IN ARIZONA

A SPECIMEN of *Amyda emoryi* was recently presented to the Field Museum of Natural History by Rothschild's Aquarium, Chicago, through the courtesy of Mr. J. Bichele. I was astonished to learn that he had secured them from Mr. Charles L. Evans of Phoenix, Ariz. Correspondence with Mr. Evans verifies this. He states that they are plentiful in rivers and irrigation ditches, and believes them to be native. I am not aware of any previous record of soft-shelled turtles from Arizona, and while it is highly probable that the species has been introduced near Phoenix in recent years in some way, it appears to have established itself, and must be considered an addition to the Arizona fauna. Dr. Charles T. Vorhies of the University of Arizona informs me that the Bullfrog has been introduced at Phoenix, where it has apparently established itself as a permanent resident. I wish to call attention to the occurrence of soft-shelled turtles in Arizona, in order to obtain, if possible, further information as to their introduction.

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